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Before you begin

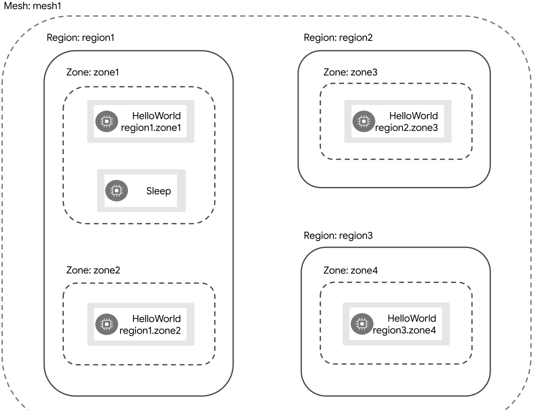
3 minute read ✓ page test

See also

Before you begin the locality load balancing tasks, you must first install Istio on multiple clusters. The clusters must span three regions, containing four availability zones. The number of clusters required may vary based on the capabilities offered by your cloud provider.

> For simplicity, we will assume that there is only a single primary cluster in the mesh. This simplifies the process of configuring the control plane, since changes only need to be applied to one cluster.

We will deploy several instances of the `HelloWorld` application as follows:



Setup for locality load balancing tasks

Environment Variables

This guide assumes that all clusters will be accessed through contexts in the default Kubernetes configuration file. The following environment variables will be used for the various contexts:

Variable	Description
`CTX_PRIMARY`	The context used for applying configuration to

	the primary cluster.
`CTX_R1_Z1`	The context used to interact with pods in `region1.zone1`.
`CTX_R1_Z2`	The context used to interact with pods in `region1.zone2`.
`CTX_R2_Z3`	The context used to interact with pods in `region2.zone3`.
`CTX_R3_Z4`	The context used to interact with pods in `region3.zone4`.

Create the `sample` namespace

To begin, generate yaml for the `sample` namespace with automatic sidecar injection enabled:

```
$ cat <<EOF > sample.yaml
apiVersion: v1
kind: Namespace
metadata:
  name: sample
  labels:
    istio-injection: enabled
EOF
```

Add the `sample` namespace to each cluster:

```
$ for CTX in "$CTX_PRIMARY" "$CTX_R1_Z1" "$CTX_R1_Z2" "$CTX_R2_Z3" "$CTX_R3
_Z4"; \
  do \
    kubectl --context="$CTX" apply -f sample.yaml; \
  done
```

Deploy `HelloWorld`

Generate the `HelloWorld` YAML for each locality, using the locality as the version string:

```
$ for LOC in "region1.zone1" "region1.zone2" "region2.zone3" "region3.zone4
"; \
  do \
    ./@samples/helloworld/gen-helloworld.sh@ \
      --version "$LOC" > "helloworld-${LOC}.yaml"; \
  done
```

Apply the `HelloWorld` YAML to the appropriate cluster for each locality:

```
$ kubectl apply --context="${CTX_R1_Z1}" -n sample \
  -f helloworld-region1.zone1.yaml
```

```
$ kubectl apply --context="${CTX_R1_Z2}" -n sample \
  -f helloworld-region1.zone2.yaml
```

```
$ kubectl apply --context="${CTX_R2_Z3}" -n sample \
  -f helloworld-region2.zone3.yaml
```

```
$ kubectl apply --context="${CTX_R3_Z4}" -n sample \
  -f helloworld-region3.zone4.yaml
```

Deploy `Sleep`

Deploy the `Sleep` application to `region1` `zone1`:

```
$ kubectl apply --context="${CTX_R1_Z1}" \
  -f @samples/sleep/sleep.yaml@ -n sample
```

Wait for `HelloWorld` pods

Wait until the `HelloWorld` pods in each zone are `Running`:

```
$ kubectl get pod --context="${CTX_R1_Z1}" -n sample -l app="helloworld" \
  -l version="region1.zone1"
NAME                                       READY   STATUS    RESTARTS   AGE
helloworld-region1.zone1-86f77cd7b-cpxhv   2/2     Running   0          30s
```

```
$ kubectl get pod --context="${CTX_R1_Z2}" -n sample -l app="helloworld" \
  -l version="region1.zone2"
NAME                                       READY   STATUS    RESTARTS   AGE
helloworld-region1.zone2-86f77cd7b-cpxhv   2/2     Running   0          30s
```

```
$ kubectl get pod --context="${CTX_R2_Z3}" -n sample -l app="helloworld" \
  -l version="region2.zone3"
NAME                                       READY   STATUS    RESTARTS   AGE
helloworld-region2.zone3-86f77cd7b-cpxhv   2/2     Running   0          30s
```

```
$ kubectl get pod --context="${CTX_R3_Z4}" -n sample -l app="helloworld" \
  -l version="region3.zone4"
NAME                                       READY   STATUS    RESTARTS   AGE
helloworld-region3.zone4-86f77cd7b-cpxhv   2/2     Running   0          30s
```

Congratulations! You successfully configured the system and are now ready to begin the locality load balancing tasks!

Next steps

You can now configure one of the following load balancing options:

- Locality failover
- Locality weighted distribution

> ⚠ Only one of the load balancing options should be configured, as they are mutually exclusive. Attempting to configure both may lead to unexpected behavior.